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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,266	04/25/2000	Nobuyuki Kambe	N19-12-0033	8988

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EXAMINER

FERGUSON, LAWRENCE D

ART UNIT

PAPER NUMBER

1774

DATE MAILED: 02/06/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/558,266

Applicant(s)

KAMBE ET AL.

Examiner

Lawrence D Ferguson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-16 and 41-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-16 and 41-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to the amendment mailed November 22, 2002.  
Claim 1 was amended rendering claims 1, 4-16 and 41-53 pending. Upon further consideration, the finality of the Office Action of September 25, 2002 is withdrawn.

### ***Claim Rejections – 35 USC 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In claim 14, the phrase “high index of refraction” is indefinite. High is a relative term.

### ***Claim Rejections – 35 USC § 103(a)***

4. Claims 1, 4-8, 11-12 and 15-16, 41-43 and 45-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Debe et al. (U.S. 5,879,827) for the reasons set forth in paragraph 19, in the previous office action, mailed July 18, 2001. Debe does not explicitly disclose the range average particle diameter of the particles or photonic band

gap. Because the reference has the same materials with the same function as applicants, it would have been obvious to one of ordinary skill in the art that the photonic band gap would be expected to be the same because it directly effects the integrated assembly. The range of average particle size is an optimizable feature. It is obvious to optimize the components in a composition. *In re Aller* 105 USPQ 223.

***Claim Rejections – 35 USC § 102(b)***

5. Claims 1 and 8-12 are rejected under 35 U.S.C. 102(b) as being unpatentable over Alivisatos et al. (U.S. 5,751,018).

Alivisatos discloses self-assembled bifunctional organic monolayers as bridge compounds exposed to solutions of nanocrystals that are organized into an assembly of clusters (abstract, lines 1-14). Alivisatos discloses inorganic surfaces such as metals and oxides (column 2, lines 37-39) and thin layers of metal or metal oxides (column 5, line 7). The reference further discloses inorganic surfaces (column 5 line 67 through column 6, line 1) having fluorescence (column 13, line 16) with bridging moieties having two functional groups (column 13, lines 44-46).

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Response to Arguments***

7. Applicant's remarks to 35 USC 112, first paragraph have been considered and overcome the rejection due to amendment of claim 1.

Applicant's arguments to 35 USC 103(a) as being unpatentable by Debe et al. (U.S. 5,879,827) have been considered but are unpersuasive. Applicant argues the Examiner asserted the photonic band gap would be inherent and the average particle size is an optimizable feature but the differences between the prior art and claimed invention are not properly characterized. The same layer comprising a plurality of self-assembled structures made of the same components would be expected to have the same properties, absent any evidence to the contrary. Applicant must show the references instantly cited cannot exhibit the claimed features in order to overcome the rejection. Applicant cites Graham v. John Deere stating a prior art reference must be considered as a whole. Applicant argues the Debe patent does not teach or suggest a

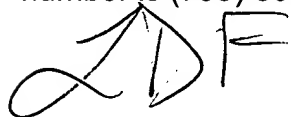
feature of the claimed invention, specifically, self-assembled structures comprising compositions and inorganic particles. This is not true because Debe discloses catalyst particles and nanoscopic particles (column 4, lines 56-60) comprising inorganic materials (column 6, lines 62-65) along with self-assembled layers (column 10, line 62). Applicant states the Debe patent is directed to a fuel cell membrane electrode assembly with microstructured support wiskers. Intended use is given little patentable weight (see *n re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Applicant maintains the Debe patent does not disclose self-assembled structures comprising inorganic particles. Once again, this is not true, because Debe discloses catalyst particles and nanoscopic particles (column 4, lines 56-60) comprising inorganic materials (column 6, lines 62-65) along with self-assembled layers (column 10, line 62). Because the Debe patent discloses self-assembled structures comprising inorganic particles, the rejection is maintained for reasons of record.

Applicant's arguments to 35 USC 102(b) as being anticipated by Alivisatos et al. (U.S. 5,751,018) have been considered but are unpersuasive. Applicant argues the Alivisatos patent does not disclose separate, selected locations as recently amended in Applicant's claimed invention. For this reason, Applicant alleges the Alivisatos patent does not *prima facie* anticipate Applicants' claimed invention. Examiner respectfully disagrees because the reference discloses self-assembled monolayers organized into an assembly of clusters (abstract; column 6, lines 1-14) and Figure 4 shows a plurality of separate, selected locations.

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is (703) 305-9978. The examiner can normally be reached on Monday through Friday 8:30 AM – 4:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. Please allow the examiner twenty-four hours to return your call.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.



Lawrence D. Ferguson  
Examiner  
Art Unit 1774

CYNTHIA M. KELLY  
SUPERVISOR  
TECHNICAL SERVICES

